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## Pt-Based Core-Shell Nanocrystals with Enhanced Activity and Durability toward Oxygen Reduction Reaction

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The oxygen reduction reaction (ORR) in a polymer electrolyte membrane (PEM) fuel cell requires the use of Pt-based catalysts. Due to the high cost and low abundance of Pt, many researchers have been studied to reduce the use of Pt while to enhance the catalytic performance of Pt. One of the promising strategies is the deposition of Pt as ultrathin skins of only a few atomic layers on nanoscale substrates made of another metal. This presentation will discuss the conformal deposition of Pt as uniform, ultrathin shells on Pd nanocrystals. By optimizing the catalytic behavior of Pt-based nanocrystals, we obtained the greatly enhanced ORR activity and durability.

**Keywords:** Oxygen reduction, platinum, palladium, core-shell

